

Claims

What is claimed is:

1. A coated optical fiber comprising:
a silica cladding; and
5 a coating applied to said cladding to provide said coated optical fiber having a diameter from about 120 microns to about 150 microns, said coated optical fiber further having a relative frequency distribution of at least about 85% for dynamic fatigue measurements between about $49.2 \times 10^3 \text{ kg/cm}^2$ and about $63.3 \times 10^3 \text{ kg/cm}^2$.
- 10 2. The coated optical fiber of claim 1 wherein said relative frequency distribution is at least about 90%.
3. The coated optical fiber of claim 1, wherein said diameter is from about 128 microns to about 135 microns and said relative frequency distribution is at least about
15 95%.
4. The coated optical fiber of claim 1, wherein said coated optical fiber further includes an optical fiber core covered by said silica cladding.
- 20 5. The coated optical fiber of claim 4, wherein said optical fiber core and said silica cladding provide a silica clad core having a diameter from about 65 microns to about 100 microns.
6. The coated optical fiber of claim 5, wherein said silica clad core has a diameter
25 from about 80 microns to about 90 microns.
7. The coated optical fiber of claim 5, wherein said coating is a polymeric coating.
8. The coated optical fiber of claim 7, wherein said polymeric coating comprises a
30 first layer in contact with a second layer.

9. The coated optical fiber of claim 7, wherein said polymeric coating forms by curing of a coating composition that contains a cationic photoinitiator.

10. The coated optical fiber of claim 9, wherein said cationic photoinitiator is a diaryl
5 iodonium salt having a diaryliodonium cation and an anion selected from the group consisting of hexafluoroantimonates, and methide anions having a general formula $(R_iSO_2)_3C^-$.

11. The coated optical fiber of claim 10, wherein said general formula $(R_iSO_2)_3C^-$ is
10 selected from the group consisting of $(CF_3SO_2)_3C^-$, $(C_4F_9SO_2)_3C^-$, and $(C_8F_{17}SO_2)_3C^-$, and the like.

12. A GGP optical fiber comprising:
an optical fiber core;
15 a silica cladding over said optical fiber core, to provide a silica clad core;
and
a permanent polymeric coating applied to said cladding by exposure to
actinic radiation of a photocurable composition containing a photoinitiator, said GGP
optical fiber having a diameter from about 120 microns to about 150 microns, said GGP
20 optical fiber further having a relative frequency distribution of at least about 85% for
dynamic fatigue measurements between about $49.2 \times 10^3 \text{ kg/cm}^2$ and about $63.3 \times 10^3 \text{ kg/cm}^2$.

13. The GGP optical fiber of claim 12, wherein said relative frequency distribution is
25 at least about 90%.

14. The GGP optical fiber of claim 13, wherein said diameter is from about 128
microns to about 135 microns and said relative frequency distribution is at least about
95%.

15. The GGP optical fiber of claim 12, wherein said silica clad core has a diameter
30 from about 65 microns to about 100 microns.

16. The GGP optical fiber of claim 15, wherein said silica clad core has a diameter from about 80 microns to about 90 microns.

5 17. The GGP optical fiber of claim 12, wherein said permanent polymeric coating has a thickness from about 10 microns to about 25 microns.

18. The GGP optical fiber of claim 17, wherein said permanent polymeric coating has a thickness from about 20 microns to about 23 microns.

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19. The GGP optical fiber of claim 12, wherein said photoinitiator comprises a diaryl
iodonium salt having a diaryliodonium cation and an anion selected from the group
consisting of hexafluoroantimonates, and methide anions having a general formula
(R_iSO₂)₃C⁻.

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20. The GGP optical fiber of claim 19, wherein said general formula (R_iSO₂)₃C⁻ is
selected from the group consisting of (CF₃SO₂)₃C⁻, (C₄F₉SO₂)₃C⁻, and (C₈F₁₇SO₂)₃C⁻,
and the like.

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